

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter Of)
)
Amendment Of The Commission's Rules)
To Permit Flexible Service Offerings)
In The Commercial Mobile Radio Services)

WT Docket No. 96-6

DOCKET FILE COPY ORIGINAL

NYNEX COMMENTS

The NYNEX Companies (collectively "NYNEX") hereby provide their comments in response to the Notice of Proposed Rulemaking ("NPRM"), released January 25, 1996 in the above-referenced proceeding.¹

I. SUMMARY OF ARGUMENT

In the NPRM the Commission has indicated its tentative conclusion to authorize broadband Commercial Mobile Radio Service ("CMRS") providers "to offer fixed wireless local loop service" (NPRM at para 1). The Commission also asks for comments on whether to include in this authorization narrowband wireless providers and "other and all fixed services." (NPRM at paras. 22-25). In addition, the Commission asks for comments on its proposed regulatory treatment of such services when fixed services become the "primary use" of spectrum and, if these

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¹ The NYNEX Companies are New England Telephone & Telegraph Company and New York Telephone Company.

are treated as entirely federal, the extent to which its “Universal Service” and other carrier obligations should apply. (NPRM at paras. 19-21).

NYNEX supports the broadest possible application of spectrum utility for beneficial public uses. As the Commission observes, it “is guided by policies set forth in the Communications Act to encourage the provision of new technologies and services to the public.” (NPRM at para. 7, citing 47 U.S.C. §157.). NYNEX has consistently supported the flexible use of newly offered spectrum under conditions that enable the marketplace to determine where it can best serve the public interest.² To accomplish its purpose, the Commission should also make similar flexibility available to narrow-band wireless carriers and wireline interexchange (“IXCs”) and local exchange carriers (“LECs”) for the same public interest reasons. Importantly, to make these beneficial public uses equally viable for all cellular carriers and LECs it must also act now to eliminate its anachronistic “cellular separations” rules (47 C.F.R. §22.903) which will otherwise impede the efficient use of wireless/wireline technology for a specific category of carriers, *i.e.*, the “Bell Operating Companies” and the affiliated cellular carriers.

It is premature at this time, however, to establish a new regulatory scheme for the “primary use” of spectrum as “fixed loop services.” All uses to date have been ancillary to CMRS and would not by any definition be deemed a primary use.

² See, *e.g.*, NYNEX Comments and Reply Comments, Third Notice of Proposed Rulemaking and Supplemental Tentative Decision (LMDS), CC Docket 92-297, released July 28, 1995.

Indeed, it is our understanding that the technology itself is still substantially under development. Accordingly, the Commission may reasonably defer establishing criteria for determining when the “primary use” of spectrum has become the provision of “fixed local loop.” (NPRM at para. 13.).

Nevertheless, to the extent that the industry requires advice in this area for future services that go beyond ancillary uses, the Commission should advise prospective providers of wireless “fixed loop” services as a primary use that regulatory oversight will depend upon the nature of the local exchange services provided, not on the technology employed. Further, these uses should be regulated in the appropriate jurisdiction; this Commission for interstate communications and State commissions for intrastate communications. In any forum, regulatory parity based on functional equivalency should be the guiding principle to ensure that critical public interest concerns are satisfied.

II. THE COMMISSION SHOULD AUTHORIZE THE FLEXIBLE USE OF SPECTRUM BY ALL CARRIERS FOR FIXED WIRELESS SERVICE APPLICATIONS

NYNEX is a leading proponent of the use of “CMRS spectrum” for fixed point-to-point services through its Science & Technology organization.³ We believe that our experimentation has demonstrated that such use is technologically

³ NYNEX Science & Technology conducted a Wireless POTS trial in Brooklyn, New York from 1991-94 using the PCS frequency band under an experimental license from the Commission.

viable in dense urban areas as a local loop substitute. Accordingly, we are pleased to see that the Commission is moving to remove this spectrum application from the limitations previously imposed on PCS services (“fixed services (except broadcast services) may be provided if ancillary to mobile operations,” see 47 C.F.R. §24.3).⁴

In fact, the proposed use of such spectrum would not be ancillary. It would be local exchange service without the mobility inherent and required of CMRS providers in the past: “[w]e conclude that the basic concept of PCS embodies primarily mobile or portable communications serving both business and individuals.”⁵ In this regard, it is functionally identical to fixed point-to-point microwave services frequently used in local exchange and interexchange operations. Nevertheless, if this is a desired service in the marketplace, it should be available for delivery by wireless technologies equally as with wireline technologies. Further, from all reports of the “C” Block auctions, as well as the results of the earlier “A” and “B” Block auctions, there will be many highly committed, well-funded, high technology companies among those who will seek to exploit this opportunity.

⁴ Other entities are in a far better position to comment on the spectrum availability and interference concerns raised by the Commission (NPRM at paras 14-15).

⁵ In the Matter of Amendment of The Commission’s Rules to Establish New Personal Communications Services, GEN Docket No. 90-134 and RM-7140, RM-7175, RM-7618, Second Report and Order, 8 FCC Rcd 7700, 7712 (1993).

The Commission is also correct to recognize that it should not establish rules herein which favor broadband wireless providers over their narrowband competitors. (NPRM at paras. 17-18). We agree with the Commission that, if one wireless technology succeeds in this area while another does not, it should not be the result of artificial regulatory distinctions. (NPRM at para. 19.) For exactly this same reason, the Commission should act to remove the barriers inherent in the cellular separation rules that would ban many cellular companies from competing equally in the competition for the wireless loop. 47 C.F.R. § 22.903. The Commission has indicated that it will soon begin this process,⁶ and it must proceed expeditiously to ensure that the benefits of customer choice envisioned in this NPRM are realized in full:

“The ability of a carrier to offer consumers a “menu” of service, which could include fixed wireless local loop services, adds value to the carriers’ mobile services because it gives the mobile customer the option of using the fixed and mobile applications offered by a single provider.” (NPRM at para. 20).

In addition, wireline carriers themselves should be able to bring the benefits of technological advances to the public. All IXC and most LECs will be rapidly able to do so. Only the wireline Bell Operating Companies will be constrained by

⁶ See, In The Matter of Motion Of Southwestern Bell Mobile Systems, Inc. For A Declaratory Ruling That Section 22.903 And Other Sections Of The Commission’s Rules Permit The Cellular Affiliate Of A Bell Operating Company To Provide Competitive Landline Local Exchange Service Outside The Region In Which The Bell Operating Company Is The Local Exchange Carrier, Docket CWD 95-5, Memorandum Opinion and Order, released October 25, 1995 at para. 21.

this Commission in their use of cellular technology to serve the public as efficiently and economically as possible by artificial regulatory restraints. The anticompetitive barrier embodied in these same cellular separations rules, applicable only to a selectively impaired few, must be eliminated in favor of advancing the public interest. It makes no sense at all to enable all other LECs, as well as AT&T, MCI, SPRINT and others, to serve the public via cellular spectrum, whether licensed, leased or resold, and to deny similar flexibility to the BOCs who today provide a substantial proportion of local service nationwide.⁷

III. THE PROVISION OF FIXED “LOCAL LOOP” SERVICE SHOULD BE GOVERNED BY THE PRINCIPLES OF REGULATORY PARITY

In enabling the provision of fixed local loop service, the Commission has properly recognized that the nature of regulatory treatment afforded this non-mobile service requires further consideration. Indeed, if it elects to pursue this opportunity, the CMRS provider has perforce shifted from commercial mobile radio service to local exchange service. Section 3(n) of the Communications Act states:

⁷ Indeed, Congress itself has just concluded that notwithstanding Commission rules to the contrary, the BOCs should be permitted to engage in the joint marketing and sale of local wireline exchange and cellular services. Telecommunications Act of 1996, Section 601(d). Further, Congress has indicated that the BOCs themselves may provide interLATA wireless services. Section 271(g)(3). In the face of these overwhelming determinations of national telecommunications policy, there is no logic to denying the BOCs the right to provide cellular service. Moreover, the Sixth Circuit Court of Appeals has itself recently pointed out that there is no articulated, reasonable distinction between the BOCs’s authority to provide PCS and the regulatory prohibition on their provision of cellular services. Cincinnati Bell Telephone Co. v. FCC, 69 F.3d 752 (1995).

“‘Mobile service’ means a radio communication service carried on between mobile stations or receivers and land stations, and by mobile stations communicating among themselves,”⁸

The essence of CMRS -- mobility of at least one station -- is by definition not present in “fixed local loop” services.

As above, it would be premature for the Commission to attempt to determine here what criteria would be used to assess when an “ancillary use” of spectrum had become a “primary use.” NPRM at para. 13. Inasmuch as it cannot yet know the type and extent of such potential services, the Commission may wisely wish to keep such potential services solely within its regulation as “ancillary” services. However, because auction participants are almost certain to argue later that they “relied upon” their exemption from State regulatory oversight, the Commission should now make it clear that they will be subject to such oversight if and when they begin the general public offer of local loop service. This is of paramount importance given the potential level of primary use. *See, New York Times*: “An Aerial Assault On The Wired Nation,” February 25, 1996 (Attached, Exhibit A).

The essence of regulatory parity depends upon the functional equivalency of the service provided, not the medium or technology employed. The Commission itself has recently said in a related context that parity by “functional

⁸ 47 U.S.C. §153(n).

equivalency” represented a long term goal.⁹ To regulate otherwise would be to enable one particular category of provider to carry over a uniquely favorable regulatory classification of its services from one context (mobile service) to another, wholly different context (local exchange service). This would have particularly vexatious consequences where, as here, that classification also enables the providers of a substitutable service to evade the State regulatory oversight which would apply to all other providers.

Nor is the Commission required to conclude that because a service is wireless, it is “CMRS” and beyond the State’s power to regulate. The nature of jurisdiction over such local loop services is established by the interstate/intrastate character of the traffic carried, not by the appellation of “CMRS” applied irrespective of whether the service is or is not mobile. The very statutory language the proponents of preemption rely upon (Section 332(c) of the Act (47 U.S.C. 332)), itself refers for its application to the definitional language of §152(n) which, as above, presupposes mobile stations. Accordingly, there is no Congressional authority provided for excluding State regulatory authority over wireless local loop services, nor should there be such preclusion as a matter of policy when intrastate service is at issue.

⁹ Notice of Proposed Rulemaking, FCC 95-505, CC Docket No. 95-185 and CC Docket No. 94-54, released January 11, 1996 at para. 77.

As a technical matter, it could be argued that PCS service is “CMRS” irrespective of whether it is fixed or not, if the Commission says so.¹⁰ However, such a tautological approach would be unsound. First, such argument clearly does complete violence to the controlling overall language of the definition. Moreover, it would give discriminatory preference to PCS over other wireless services. There is neither logic nor legislative support for such a proposition. On the contrary, the legislative history indicates a strong Congressional intent to regulate all wireless services alike. NPRM at para. 16.

Finally, the recently enacted Telecommunications Act of 1996 provides further evidence that Congress did not intend CMRS providers to be an exempted category of carriers, irrespective of the service provided.¹¹ In establishing three categories of carriers, including “telecommunications carriers”, “local exchange carriers” and “incumbent local exchange carriers,” Congress specifically authorized this Commission to treat CMRS providers as local exchange carriers in appropriate circumstances.¹² There could not be a more appropriate case than here, if a wireless

¹⁰ See, § 153(n)(3).

¹¹ In fact, Congress has specifically answered in the affirmative the Commission’s inquiry as to /whether CMRS providers should be part of its Universal Service program. Section 254(d). Importantly, CMRS providers as “telecommunication carriers” shall also contribute to State universal service support. Section 254(f).

¹² 47 U.S.C. § 153 new subsection (44). This does not, of course, require the wireless carrier to carry the full legislative burdens of “incumbent local exchange carriers” but it does recognize that like services should be regulated alike.

carrier determines to build its business on the general offer of fixed local loop service as a substitute for existing local wireline service.

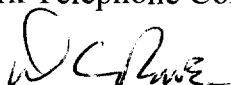
V. **CONCLUSION**

NYNEX urges Commission action to authorize all carriers to use both broadband and narrowband wireless spectrum on an equal basis in meeting customers' local loop and other fixed wireless service needs. Further, it should indicate that when these services develop into the general offer of local loop service, they will not be exempt from the appropriate Commission and State regulatory oversight.

Respectfully submitted,

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EXHIBIT A

Business Day

The New York Times

The
Information
Industries

An Aerial Assault On the Wired Nation

Airwaves Are Ammunition of Choice Against Phone and Cable Targets

By MARK LANDLER

Jim Robbins is a cable television executive, but these days he sounds more like the cellular telephone billionaire Craig O. McCaw.

Mr. Robbins, the chief executive of Cox Communications, oversees the nation's fifth-largest cable operator. And while he remains enthusiastic about serving Cox's 3.2 million subscribers, he really comes to life in describing the company's foray into wireless telephone service.

Along with Sprint and two other big cable companies eager to break into the local phone business, Cox has invested \$2.1 billion for licenses to offer a new cellular service, called personal communications services, or P.C.S. The partners — the other two are Tele-Communications Inc. and Comcast — are spending \$2 billion more to build a national network capable of reaching 144 million people.

"Wireless is absolutely exploding," Mr. Robbins said.

Three weeks after President Clinton signed a bill uncorking competition in the telecommunications industry, the battle among local and long-distance phone companies and cable operators has taken an unexpected turn. Rather than waging a ground war for each other's wired network, many companies now seem intent on taking their battles to the skies — trying to infiltrate the well-protected markets of their rivals by beaming telephone or television signals directly to customers.

"People ask when local competition is going to happen; that's the wrong question," said David J. Roddy, chief telecommunications economist at Deloitte & Touche, the big accounting and consulting firm. "The real question is: When is wireless competition going to happen? The answer is: now."

Mr. Roddy said Americans spent roughly \$22 billion on wireless services in 1995, and he expects that to double by the turn of the century.

Long-distance carriers are particularly keen on catching the air wave, because they have national networks but lack direct connections to individual telephone and cable households. Late last month AT&T announced that it would invest \$137.5 million in a satellite broadcasting service, DirectTV. A week later MCI paid \$682 million for an orbital slot to offer its own high-powered satellite broad-

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In Auctions Of Airwaves, The Sky Seems To Be the Limit

By EDMUND L. ANDREWS

WASHINGTON, Feb. 25 — As Assistant Secretary of Commerce under President George Bush, Janice Obuchowski was a passionate evangelist for what was then a radical idea: selling licenses to the nation's airwaves through auctions, rather than giving them away free.

Today, such auctions are real, and Ms. Obuchowski is still a true believer. Only now, she is backing her convictions with nearly \$2 billion.

Nextwave Personal Communications, a company that Ms. Obuchowski co-founded six months ago, has emerged as the heaviest bidder at the Federal Communications Commission's latest auction of wireless communication licenses.

With that auction still under way, Nextwave and a handful of other companies have sent prices soaring to levels that have shocked industry executives and are defying almost all predictions. By Friday, bidding had reached \$6.97 billion, and the end was still nowhere in sight.

"Yes, the numbers are high," Ms. Obuchowski conceded last week, betraying no hint of anxiety as she worked from her office in Washington. "But if you have the staying power and are committed for the long term, this can be a very handsome investment."

The F.C.C., which has come to see airwave auctions as a major revenue source for the Federal Treasury, can only hope the prices keep going up. But many industry executives are shaking their heads in disbelief, warning that the bidding may far outstrip the possibilities for profit.

"Nobody ever imagined that the prices would get this high," said Thomas Sullivan, president of a start-up called Telecorp. Mr. Sullivan's company, despite be-

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In Auctions Of Airwaves, Sky Seems To Be Limit

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ing backed by Chemical Bank and founded by one of AT&T's top wireless strategists, dropped out last week. "We just couldn't make the numbers work," a discouraged Mr. Sullivan said. "It's about three years of work down the drain."

Who is behind all this radio-spectrum speculation, and what are they thinking? The F.C.C. reserved this auction exclusively for small companies, which are bidding on the equivalent of a new cellular license for each of 493 markets nationwide — except that these new cellular phones will also be able to easily transmit data messages.

This auction is a follow-up to a similar one last year, which was dominated by communications giants like AT&T and Sprint. But many of the current bids have surged well beyond what AT&T and Sprint paid for their licenses last year.

By taking advantage of F.C.C. rules that were intended to help entrepreneurs raise money, a handful of start-up companies have tapped corporate conglomerates from around the world and flooded the auction with money.

Many of these companies did not exist 12 months ago, yet they have emerged as the newest, brashiest and some say rashest speculators in the wireless communications market. How brash? Craig O. McCaw, who became a billionaire through the first generation of cellular telephones, dropped out of the auction almost two weeks ago. So have several other well-financed companies.

Most of these companies were started by former executives at big telephone and cellular companies, who then raised money from investors around the world. Under the F.C.C. rules, big corporations can own as much as 75 percent of the equity in a company without that company losing its defined status as a "small business."

A lot of money, not surprisingly, is coming from big companies already in the communications industry. But capital is also pouring in from financial houses like Fidelity Investments, Chemical Bank and the Silicon Valley venture capital firm of Kleiner Perkins Caufield & Byers. And a significant amount of financing is being put up by Asian corporate and individual investors.

One bidder whose source of financing remains a mystery is John Dolan, founder of a Huntington, L.I., company called North Coast Mobile Communications. Mr. Dolan bid \$700 million last week for a license to serve the metropolitan New York market, although Ms. Obuchowski's Nextwave at least temporarily topped him on Friday by offering \$738 million. And his bid of \$106 million for Cleveland is currently the highest for that city.

Mr. Dolan disclosed no investors or corporate affiliations in his application to the F.C.C., and reported that his corporate assets were less than \$10,000. But Mr. Dolan is the nephew of Charles Dolan, chairman of Cablevision Systems Inc. of Woodbury, L.I., which owns cable franchises covering much of New York City and Long Island, as well as smaller cable systems elsewhere.

In an interview last week, Mr. Dolan refused to discuss company finances or to comment on any links to Cablevision Systems — except to say he had secured a bank loan.

The financial roots of the other big bidders are easier to trace. To form Nextwave, for example, Ms. Obuchowski teamed up with Allen Salmasi, a former executive at the Qualcomm Corporation of San Diego. Qualcomm makes wireless communications gear and has retained

The New Spectrum Speculators

It was supposed to be an auction for small companies. But as the F.C.C. auctions off its "entrepreneurs' block" of radio spectrum for a new wireless technology called Personal Communications Services, the prices being bid for some of the 493 local markets are outstripping

the amounts paid in a much bigger auction last year when giant companies including AT&T and Sprint agreed to spend a total of \$7.7 billion for P.C.S. licenses. Here is a look at the current leading bidders (through last Friday), which would be able to pay for their licenses on a 10-year installment plan.

NEXTWAVE PERSONAL COMM.

FOUNDERS Allen Salmasi, former Qualcomm Inc. vice president; Janice Obuchowski, former Assistant Secretary of Commerce.

BACKERS Qualcomm; Sony; PECO Energy; Triumph Capital Group; Pohang Iron and Steel (Korea); Lucky Goldstar (Korea).

STRATEGY Sell wireless services wholesale to big carriers like Sprint, MCI and AT&T.

TOTAL HIGH BIDS SO FAR
\$1.93 billion for 14 markets

DCR COMM.

FOUNDER Daniel C. Riker, former MCI Communications vice president.

BACKERS None disclosed. Mr. Riker is a former MCI executive and is currently a consultant to MCI. He is also a partner in DCR Communications, which is a subsidiary of MCI.

FOUNDER Steven Zecola, former head of wireless at MCI Communications.

BACKERS Fidelity Investments, Airtel, Century Telephone, Mitsubishi.

STRATEGY Serve as retailer or wholesaler, depending on local market, and act as informal ally of other companies using European GSM technology.

TOTAL HIGH BIDS SO FAR
\$987 million for 11 markets

ORANGE PCS

FOUNDER John Dolan, former strategic planner at Cablevision Systems and nephew of Charles Dolan, chairman of Cablevision Systems.

BACKERS None disclosed.

STRATEGY Mr. Dolan seems intent on winning a license for the New York market, even though Nextwave at least temporarily topped him on Friday with a bid of \$738 million.

TOTAL HIGH BIDS SO FAR
\$106 million for Cleveland, but has bid \$700 million for the New York market.

about 12 percent of Ms. Obuchowski and Mr. Salmasi's company.

Yet most of Nextwave's money is coming from Japan and South Korea. If Nextwave wins licenses, Sony will acquire 6.5 percent of the company; Pohang Iron and Steel of South Korea, one of the world's biggest steel companies, will acquire 13.3 percent, and Lucky Goldstar, the huge Korean electronics conglomerate that is part of the LG Group, will own 10.7 percent.

Two big bidders were founded by people who previously ran wireless programs for MCI Communications. MCI itself had been an investor in U.S. Airwaves, a bidder that dropped out of the auction on Feb. 15.

Daniel C. Riker, who left MCI three years ago, started DCR Communications in Columbia, Md., and then lined up backing from Westinghouse Electric and a partnership of wealthy Asian investors led by two Japanese brothers — Ikuro and Hiroshi Tajima — who own and distribute industrial sewing equipment. Through Friday, DCR was the second-highest bidder in the auction over all, and was leader in 15 markets, with a total of \$1.19 billion bid.

Based just a few miles away from Mr. Riker, Steven Zecola is bidding aggressively with a company called Go Telecommunications. Mr. Zecola, who was once Mr. Riker's boss at MCI, was high bidder in 11 markets, with offers totaling \$987 million, through Friday.

Mr. Zecola's biggest backer is Fidelity Investments, the giant mutual fund company owned by the FMR Corporation, but he also attracted



Janice Obuchowski, a co-founder of Nextwave Personal Communications, in her office.

money from Mitsubishi of Japan and two operators of small local American telephone companies.

At least part of the high-roller allure has been the easy credit terms the F.C.C. is extending. In last year's P.C.S. auction, winners had to put up the full bid amount within a few months. But to make it easier for small companies, the winners in this auction can pay for their licenses on a 10-year installment plan at low interest rates. Experts estimate that this cuts the effective price of the bids by one-third to one-half.

Whatever the reason, this auction is setting records. Measured by the

prices being paid "per pop" — the price being offered for each person in the population area covered by a license — the bidders in this auction are paying about \$25, while companies like AT&T paid about \$15 in last year's auction.

And these outlays will be the entry fees into a game that promises to be brutally competitive. Besides the two existing cellular phone carriers in every market, the winners of last year's auctions will add two new rivals in each city. That means each license winner in the current round will be the fifth player in most markets.

But the big bidders are hardly neophytes. Mr. Riker of DCR said he would build his systems almost entirely with financing from big equipment suppliers, including L.M. Ericsson of Sweden and Nortel, a unit of Northern Telecom. Combined with the deferred payment for new licenses, Mr. Riker said, his cash needs will be far less than they might appear at first blush.

Mr. Salmasi and Ms. Obuchowski at Nextwave, say they have little intention of marketing wireless phone services under their own brand. Rather, they plan to become a wholesale supplier of service to big national carriers.

Billions of dollars are being bid and billions may well be lost. But even skeptics recall that Mr. McCaw was considered a borderline lunatic when he borrowed billions during the 1980's to build McCaw Cellular Systems — only to seem crazy like a fox when AT&T bought his company for \$10 billion in 1994.

Aerial Assault Begun Against Wired Nation

Continued From First Business Page

casting service. And just last week, Sprint and its cable partners reorganized their alliance to focus on wireless, rather than wired services — even changing the venture's name to Sprint Spectrum, an allusion to the radio-frequency spectrum used by wireless services.

Meanwhile a frenzied Federal Communications Commission auction continues in Washington for an additional round of P.C.S. licenses, with the total bids approaching \$7 billion through last Friday.

To be sure, the popularity of wireless stems partly from the fact that the business has already grown so rapidly. The cellular industry that made Mr. McCaw so rich went from almost nothing in 1980 to a \$20 billion business last year. And in the last few years, refinements in digital technology have also made wireless transmission suitable for a broader range of services, including computer-precise television transmissions and high-speed data transfer.

But the current craze also reflects a more sober business reality: Even after the telecommunications market is fully deregulated, the high cost of stringing wires or laying cables, and the expected resistance of the local cable and phone-wire monopolies to interlopers, will make it tough for long-distance carriers, local telephone companies, or cable operators to break into each other's traditional land-line markets.

"It is very hard to develop a wired strategy," said William T. Esrey, chairman and chief executive of the Sprint Corporation. "You can pursue a wireless strategy far more easily."

Consider Sprint's strategy for breaking into the \$90 billion local phone market. As part of its original cable alliance, Sprint's partners were supposed to upgrade their coaxial cable television networks to begin carrying telephone traffic. Earlier this month, however, the partners dropped the wired component of the deal, in part because they feared that the schedule for renovating their networks — 10 million homes by the end of 1996 — was overly ambitious.

Some analysts said the decision stemmed from a more basic fear — that the cable industry might never be able to compete economically for local phone customers. Already, cable companies have locked horns with regional Bell companies in negotiations over issues like how much they should pay for handing off calls to the Bell network.

"I think there could still be a tremendous revenue stream from telephony," said Brian L. Roberts, the president of Comcast. "But until all these issues shake out, it's prudent to keep your options open."

Just as the cable industry has qualms about taking on the Bell companies, the Baby Bells have lagged behind in their efforts to go after the cable industry. Several of the Bells announced plans a few years ago to upgrade their copper-wire networks to carry video services. But while Bell Atlantic is still rolling out a small video service over phone lines in Dover Township, N.J., most of the other efforts have quietly disappeared.

And though both AT&T and MCI have tried to get a direct link to households by broaching deals with cable operators like Tele-Communications or Time Warner, neither has succeeded.

By plunging into the satellite broadcasting business, however, AT&T and MCI will eventually be able to beam 150 channels of programming directly from satellites to pizza-pan-sized dishes on rooftops. So far, direct-broadcast services have only two million subscribers in this country. But with the muscle of AT&T and MCI, some analysts estimated that the industry would have 10 million customers by 2000.

If anything, the local telephone

business is even harder to penetrate than cable. The Baby Bells own the wires that snake into most American households. And would-be rivals like long-distance carriers face an unappealing choice. They can either negotiate to lease capacity on the local network, try to duplicate the network or find ways to bypass it.

"If you want to duplicate that kind of a network, you've got to dig up streets or put up ugly telephone poles," said Lee Cox, the president of Air Touch Cellular, the wireless company that was spun off from Pacific Telesis, a regional Bell company. "We're shooting an arrow straight at the target, and there are no front lawns or streets in the way."

So far cellular has been too expensive to become a viable competitor to local phone service. But personal communications services may have a better shot.

P.C.S. networks, using digital radio transmissions for voice and data communications via small hand-held devices, can serve many more customers simultaneously than current cellular networks. That fact, and the cut-throat competition as several

The Baby Bells also see wireless as a means of competing.

wireless companies compete in many of the larger metropolitan markets, should result in prices much lower than cellular companies have typically offered.

In the first P.C.S. auction, AT&T, like Sprint, was a heavy bidder for licenses, spending \$1.6 billion for a potential market of 107 million people. Add that to AT&T's cellular franchises through its 1994 acquisition of McCaw Cellular, and the company has considerable ammunition in its battle to bypass the Bells.

For their part, the Bells are also seizing on wireless as a weapon to compete for customers outside their regions. Air Touch Communications is part of a four-company alliance — including Bell Atlantic, Nynex, and US West — that paid \$1.1 billion for P.C.S. licenses.

And some Baby Bells are using wireless as a stalking horse for their foray into long-distance. SBC Communications, formerly Southwestern Bell, recently filed for permission to offer long-distance service in 16 states, including New York. SBC has chosen states where it already owns cellular franchises operating under the Cellular One name — a brand that SBC plans to use for marketing long-distance services.

Still, not every telephone executive thinks the future is wireless. Richard C. Notebaert, the chief executive of Ameritech, has largely eschewed the costly wireless investments of his Bell brethren. Mr. Notebaert said he was spending the bulk of Ameritech's capital resources — \$2 billion a year — to upgrade the company's existing wired network with fiber optics for data services, and in some cases to build coaxial cable television systems alongside the phone networks.

"You won't know for five years whether P.C.S. was a good investment or a bad investment," Mr. Notebaert said.

Given that the telephone industry is spending \$30 billion on P.C.S. and other forms of wireless communications, the next five years promise to be nerve-racking ones indeed.

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